

CERTAMEN MELASTOMATACEIS XXV.

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Under the aegis of the Smithsonian Research Foundation, several months during the fall of 1975 were spent in European herbaria, with investigations centered on Ecuadorian Melastomataceae. The present miscellany is mostly based on the notes accumulated on this trip, plus subsequent loans of critical materials. The hospitality at the botanical institutions visited (BM, BR, GB, K, P, S) augmented the research results much beyond normal visitant expectance.

TIBOUCHINA ANDERSSONII Wurdack, sp. nov.

Sect. *Diotanthera*. *T. eriocladae* (Triana) Cogn. affinis ramulorum pilis ad nodos non elongatis staminum maiorum connectivis magis prolongatis stylo basim versus sparse setuloso differt.

Ramuli teretes sicut foliorum venae primariae subtus petiolique dense appresso-setulosi pilis gracilibus basim versus sparse inconspicueque barbellatis 0.5-1 mm longis. Petioli 0.4-1.8 cm longi; lamina (2-)3-5.5 X (1-)1.5-3.2 cm, ovata apice acuto basi obtusa vel rotundato-truncata, firme membranacea, supra sparse vel modice strigosa (pilis gracilibus ad basim adnatis) et modice appresso-setulosa (pilis gracillimis omnino liberis), subtus modice appresso-setulosa, (5-)7-nervata (pari intermedio ad basim 2-3 mm coalito). Flores terni vel in paniculam paucifloram usque ad 3 cm longam coaliti, pedicellis 4-5 mm longis, bracteolis 2-3 mm longis plus minusve persistentibus extus strigulosis. Hypanthium (ad torum) 7 mm longum extus sicut sepala modice pilis subappressis gracilibus 1-1.5(-2) mm longis indutum; calycis tubus 0.5 mm altus, lobis (4-)6-7 X 1.7-2 mm lanceatis persistentibus intus in dimidio superiore sparse strigulosis. Petala (15-)19-24 X 10-12 mm oblongo-obovata ciliis marginalibus 0.1-0.2(-0.5) mm longis exceptis glabra. Stamina in dimensionibus dimorphica glabra; filamenta 12.5 vel 9.5 mm longa; antherarum thecae 10-10.5 vel 9 X 0.8 mm subulatae poro 0.2 mm diam. ventraliter inclinato; connectivum 3 vel 1.3-1.5 mm prolongatum, lobis ventralibus inflatis 1-1.3 X 0.8-1 mm. Stigma punctiforme; stylus 22 X 0.6 mm basaliter saepius sparse appresso-setulosus (usque ad 0.5 mm); ovarium apicem versus dense strigulosum, lobis apicalibus ca. 1.8 mm longis.

Type Collection: *G. Harling* & *L. Andersson* 14363 (holotype US 2727453; isotype GB), collected between Piñas and El Placer along the Zaruma-Santa Rosa road, Prov. El Oro, Ecuador, elev. 1100-1200 m, 6 May 1974. "Shrub 1.5-2 m. Corolla bluish violet."

Paratypes (all El Oro, Ecuador): *R. Espinosa* 1734 (NY), from Cerro Gordo (Zaruma), elev. 1250 m, 13 Aug. 1947 ("Corola

violeta"); J. A. Steyermark 53825 (F, NY), from between Pampa de los Cedros northeast of San Pablo and Curtincapa, elev. 2285-2430 m, 12 Aug. 1943 ("Shrub 5-8 feet tall; petals purple"); Harling & Andersson 14174 (GB, US), from between Huertas and Palto on road to Paccha, elev. 1300-1400 m, 2 May 1974 ("Shrub ca. 1 m. Corolla violet").

The suggested relative, known only from southern Colombia and northern Ecuador, has the branchlet nodes densely setose with fine hairs 3-4 mm long and young internodes densely villose, large stamen connectives prolonged only 1 mm, and a glabrous style, but similar dimorphic hairs on the upper leaf surfaces. In stamens (but not the foliar pubescence nor glabrous hypanthia), T. orensis Gleason is like T. anderssonii. The general aspect of T. anderssonii is like that of T. geitneriana (Schl.) Cogn. and T. longisepala Cogn., both of which have all the upper leaf surface hairs with adnate bases, completely smooth hairs on the branchlets and hypanthia, and glabrous styles; T. arthrostemoides Cogn. (André 3339 and André s. n., K) has sparsely strigulose upper and lower leaf surfaces (the upper surface hairs all adnate), cauline pubescence more obviously barbellate, and a glabrous style. Two collections from near Zaruma (Espinosa E-1887 and E-2083) generally resemble material of T. anderssonii (apparently similar stamens) but with much sparser cauline, foliar, and hypanthial pubescence, and glabrous styles; the material is inadequate for further evaluation at present.

ACIOTIS ASPLUNDII Wurdack, sp. nov.

A. levyanae Cogn. affinis, foliis 7-nervatis calycis dentibus longioribus petalis extus sparse glanduloso-setulosis differt.

Ramuli alato-tetragoni (alis ca. 0.7-1.2 mm latis) sicut folia modice setosi pilis gracilibus laxis saepissime eglandulosis 1-2(-2.5) mm longis persistentibus. Petioli (1-)1.5-2.5 (-3.5) cm longi bialati 0.5-1 mm; lamina 5-9 X 3-5 cm ovata apice paulo (ca. 0.5 cm) gradatimque acuminato basi 0.2-0.5 cm cordulata, membranacea et densiuscule ciliolato-serrulata, 7-nervata. Panicula 10-20 cm longa multiflora vel submultiflora, ramis ramulis bracteolis hypanthiis sepalisque sparsiuscule vel modice setulosis pilis gracillimis plerumque glanduliferis 0.4-1 mm longis; bracteolae ca. 1 X 0.3-0.5 mm lanceatae persistentes, pedicellis 0.3-0.4 mm longis. Hypanthium (ad torum) 2.3-2.8 mm longum obscure alatum; calycis tubus 0.2-0.3 mm longus, lobis 1.1-1.5 mm longis. Petala 4-5 X 1.6-1.9 mm lanceato-oblonga acuminata setula glandulifera 0.7-1 mm longa terminata extus sparse glanduloso-setulosa intus glabra. Stamina in dimensionibus paulo dimorphica glabra; filamenta 2.3-2.5 vel 2-2.3 mm longa; antherarum thecae 1.9-2 vel 1.5-1.6 X 0.2-0.25 X 0.25-0.35 mm oblongae poro 0.1-0.15 mm diam.; connectivum 0.2-0.3 mm prolongatum. Stigma non vel paullulo expansum; stylus 3.5-4.5 X 0.1-0.15 mm glaber; ovarium biloculare glabrum.

Type Collection: E. Asplund 20105 (holotype S), collected at Shell Mera, Prov. Pastaza, Ecuador, elev. ca. 900 m,

3 April 1956. "Herb to 1 m, petals white, anthers reddish violet."

Paratypes (all Ecuador): Pastaza: Asplund 8546 (S), Río Zuñag-Chashurco, elev. 1250 m, 25 Aug. 1939; Fagerlind & Wibom 1113 (S) and 1143 (S), both from 8 km north of Puyo, 6 Nov. 1952; Skutch 4510 p.p. (US p. p.), near Puyo, elev. 750-1000 m, Sep. 1939; Asplund 18316 (S), Mera, elev. ca. 1100 m, 10 Nov. 1955; G. W. Prescott 451 (NY) and 903 (NY), both from near Puyo. Morona-Santiago: Sparre 19045 (S), Gualaquiza, elev. 700-800 m, 27 Sep. 1967.

Aciotis levyana, known in Ecuador from the western lowlands, has 3-5-nerved leaf blades, deltoid calyx lobes only ca. 0.4 mm long, and petals glabrous except for the terminal setula. Other relatives include A. aristellata Mgf. (with eglandular hypanthial hairs, 3-5-nerved leaf blades merely obtuse at the base, and shorter anthers with longer connective prolongation, but similar long calyx lobes), A. rubricaulis (DC.) Triana (with leaf blades obtuse to truncate at the base, calyx lobes only ca. 0.5 mm long, and anther connectives prolonged ca. 1 mm), and A. aristata Ule (with leaf blades broadly acute to truncate at the base, branchlets only narrowly winged 0.3-0.4 mm and rather sparsely setulose, broadly ovate calyx lobes 0.5-0.6 mm long, petals glabrous except for the terminal setula, and stamen connectives prolonged 0.7-1 mm). I am dubious as to the correct application of the name A. caulialata (R. & P.) Triana, not having studied the type; notes on the Gay specimen (P) cited by Cogniaux indicate gland-tipped foliar hairs, corolla glabrous except for the terminal glandular setula, and anther connective (dry) prolonged 0.5 mm. If Cogniaux' delimitation is correct, many (or most) of the recent Peruvian collections referred to A. caulialata should be placed rather in A. aristata; none of these recent specimens are conspecific with A. asplundii.

MERIANIA AMPLA Wurdack, sp. nov.

M. rigidae (Benth.) Triana affinis, foliis subtus secus venas primarias puberulis floribus maioribus differt.

Ramuli teretes sicut petioli foliorum superficies inflorescentia hypanthiaque primum modice furfuracei pilis granuloso-pinoideis ca. 0.1 mm longis mox deciduis; linea interpetiolaris non vel vix evoluta. Petioli 1-2(-2.5) cm longi; lamina 7.5-12(-20) X 4-6(-13) cm elliptica apice plerumque rotundato basi late acuta vel anguste obtusa, coriacea et integra, subtus secus venas primarias persistenter pilis pinoideis 0.2-0.3 mm longis induta, 7-nervata (pari inframarginali paulo tenui incluso) vel paulo (usque ad 0.5 cm) pseudoplinervata nervis secundariis principalibus plerumque 1.5-2 mm inter se distantibus nervulis ubique paulo elevatis reticulatis (areolis 0.2-0.3 mm latis). Panicula 12-17 cm longa pauciflora; flores 5-meri, pedicellis 6-11 mm longis crassis, bracteolis non visis. Hypanthium (ad torum) 9.5 mm longum; calyx 4.5-4.8 mm longum paullulo (0.3 mm) 5-undulatum, dentibus exterioribus essentialiter obsolete. Petala 26-40 X 26-28 mm asymmetrico obovata glabra. Stamina in

dimensionibus paulo dimorphica glabra; filamenta 14.5-15.5 mm longa; antherarum thecae 10-11 vel 9 X 2 mm subulatae declinatae poro 0.4 mm diam. dorsaliter inclinatae, cornu basali 5 mm longa acuto, connectivo dorsaliter ad thecae basim paulo elevato sed dente ascendenti obscuro. Stigma non expansum; stylus 15.5 X 1 mm glaber in ovarii cono ca. 1 mm immersus; ovarium 5-loculare, apice dentibus hebetibus ca. 0.4 mm lobulato.

Type Collection: J. A. Steyermark 53507 (holotype F 1263825; isotypes F, NY), collected on densely forested moist slopes above and bordering Río Tintas southeast of El Pan, Prov. Morona-Santiago, Ecuador, elev. 2860-2985 m, 11 July 1943. "Tree 50-60 feet tall; trunk up to 2 feet diam.; petals deep rose; filaments lavender or pink; anthers creamy white with lavender appendages; style and ovary rose-red."

Paratype: M. Acosta Solís 5014 (F), from "selva humeda de Campanas al E. de El Pan, Cordillera Oriental," Morona-Santiago, Ecuador, elev. 2500-2800 m, 16 July 1943. "Arbol de hermosas flores púrpureas o rojo cardenal, tronco de 30 a 50 cm diam.; produce buena madera. Nomb. comun: cebolleta."

Meriania rigida has glabrous (and usually relatively broader, length/width ratio 1.2-1.5 rather than 2-2.1) leaf blades and calyx (above torus) only 2-2.5 mm long, but a similar ovary apex. Another close relative, M. pastazana Wurdack, has glabrous 5-nerved leaf blades and ovary apex barely (0.3-0.4 mm) prolonged around the style base. More distantly related is M. maxima Markgraf, with leaf venules beneath laxly reticulate, somewhat larger flowers, an obvious ascending dorsal tooth on the anther connective, and the ovary apex barely prolonged around the style base.

MERIANIA TOMENTOSA (Cogn.) Wurdack, comb. nov.

Centronia tomentosa Cogn., Bull. Acad. Belg. ser. 3, 14: 943. 1887.

Taxonomic synonyms of M. tomentosa include Centronia excelsa (Bonpl.) Triana (the epithet not available in Meriania) and C. tungurahuae Blake. The anther pore in M. tomentosa is on the same side as the connective appendage, the thecae showing the pseudo-inversion noted by Triana (Trans. Linn. Soc. Bot. 28: 165. 1871). The petal color and stamen structure are like that of several other species now placed in Meriania. From the stamen structure, several other species currently placed in Centronia are not congeneric with C. laurifolia D. Don, C. reticulata Triana, C. vaupesana Wurdack, and C. neblinae Wurdack, but the adjustments are the province of a tribal monographer.

MERIANIA ACOSTAE Wurdack, sp. nov.

In systemate Cogniauxii M. arboreae (Naud.) Triana affinis, foliis maioribus 7-9-nervatis subtus in superficie glabratis, calycis dentibus exterioribus minus eminentibus differt.

Ramuli robusti obtuse sulcato-quadrangulares sicut petioli indumento appresso subpinoideo (interdum apicibus attenuatis ca.

0.2 mm longis) dense induti; linea interpeltolaris ca. 0.5 mm alta evoluta. Petioli 7-11 cm longi adaxialiter apicem versus sicut laminarum subtus venae primariae strigosi pilis gracillimis 0.5-1(-3) mm longis; lamina ca. 30 X 23-30 cm ovata apice paulo hebeti-acuminato basi 1-2 cm cordata, firme membranacea et serrulata (dentibus irregularibus 1-3 mm altis), supra ut videtur paulo reticulato-rugosa glabra, subtus in superficie primum pinoideo-puberula pilis ca. 0.2 mm longis deciduis in venis venulisque pilis crispulis subpinoideis 0.2-0.5 mm longis modice induta, (7-)9-nervata nervis secundariis principalibus 5-8 mm inter se distantibus nervis tertiariis subtus paulo elevatis nervulis planis areolis 1-2 mm latis. Panicula ca. 27 X 16 cm submultiflora; flores 5-meri, pedicellis 15-21 mm longis sicut hypanthiis dense strigulosis pilis gracillimis 0.5-1 mm longis ad basim granuloso-expansis. Hypanthium (ad torum) 7 mm longum obscure 10-costatum; calyx ca. 8 mm longus ad anthesim usque ad ca. 4 mm supra torum 5-divisus, dentibus exterioribus crassis 1-1.5 mm eminentibus. Petala glabra 21-30 X 18-23 mm late obovata apice truncato-rotundatum. Stamina dimorphica glabra; filamenta 11 mm longa; antherarum thecae 10 X 1.5 mm vel 9 X 1.1 mm subulatae, poro 0.3 mm diam. dorsaliter inclinato; connectiva ad basim paullulo (0.1-0.3 mm) prolongata, dorsaliter in staminibus maioribus dente hebeti (apice lobulato) 2.5 X 1 mm et appendice ascendenti hebeti ca. 1 mm libera in staminibus minoribus dente hebeti (apice paullulo emarginato-lobulato) ca. 2 X 1.8 mm et appendice ascendenti ca. 0.3 mm libera ornata. Stigma non expansum; stylus 17 X 0.7-1 mm glaber in ovarii apicem ca. 0.7 mm immersus; ovarium 5-loculare glabrum apice hebeti-lobulato.

Type Collection: M. Acosta Solís 5809 (holotype F 1240482), collected at Saloya on the western descent of the Cordillera Occidental, Prov. Pichincha, Ecuador, elev. 1800 m, 9 Sep 1943. "Melastomacea de grandes arboles; hojas grandes; flores grandes y de un hermoso color lila, caliz café pardo."

Paratype: Sodirol Add. 3 (BR; sterile), from near Nanegal, Pichincha, Ecuador, August 1902.

Meriania arborea has 5-nerved leaf blades 9-14 X 5-8 cm with a dense persistent indument beneath, as well as external calyx teeth projecting 4-10 mm; a recent collection of this Colombian species is Cuatrecasas 23313, from above Peñas Blancas, Caldas, elev. 3000 m. The branchlet details for M. acostae are taken from the Sodirol collection (whose identity seems certain).

MERIANIA DENTICULATA (Gleason) Wurdack, comb. nov.

Calyptrella denticulata Gleason, Phytologia 2: 300. 1947.

Graffenrieda denticulata (Gleason) L. Wms., Fieldiana Bot. 29: 563. 1963.

MERIANIA ACIDA (Markgraf) Wurdack, comb. nov.

Graffenrieda acida Markgraf, Notizbl. Bot. Gart. Berl. 13: 462. 1938.

As previously indicated (Phytologia 9: 413. 1964), these two species are very closely related, M. denticulata being the

most reduced in floral features of the species-group treated by Gleason (Phytologia 2: 295-298. 1947), with the addition of M. arborea (Naud.) Triana, M. costata Wurdack, M. dimorphantha Wurdack, M. stellata (Gleason) Wurdack (vide infra), M. tuberculata Triana (probably), M. vargasii Wurdack, M. versicolor Uribe (perhaps synonymous with M. dimorphantha), and M. vilcabambensis Wurdack. Possibly Graffenrieda phoenicea Markgraf belongs in this alliance; however, no recent collections agreeing with the described feature combination (basally subcordate and apically acuminate leaf blades, petals only 6 X 4 mm, anther calcar acute and 2 mm long, ovary pubescent) have been seen; the only Oriente (Ecuador) material approaching these features (Grubb, Lloyd, Pennington, & Whitmore 1093, Borja near Antisana, Puyo) but with larger petals (9.5-9.7 X 7-8 mm), very short anther connective spurs, and a glabrous ovary, seems better placed as a variant of M. denticulata with less attenuate bases of the leaf blades.

MERIANIA FURVANTHERA Wurdack, sp. nov.

M. acidae (Markgraf) Wurdack affinis, foliis minoribus floribus maioribus differt.

Ramuli primum obtuse sulcato-quadrangulati demum teretes sicut petioli foliorum venae primariae subtus inflorescentia hypanthiaque dense pilis pinoideo-stellulatis appressis interdum (in ramulis foliorum venis primariis subtus petiolisque) ad apicem ca. 0.3-0.5 mm setuloso-protractis induti. Petioli 1-1.7 cm longi; lamina 4-7 X 2-3 cm elliptica apice hebeti-acuto basi acuta, coriacea et distincte undulato-serrulata, supra glabra et plana, subtus in superficie sparsiuscule pilis stellulato-pinoideis appressis 0.1-0.15 mm diam. induta, breviter (0.3-0.4 cm) 5-plinervata nervis secundariis ca. 2 mm inter se distantibus supra obscuris nervulis subtus non vel paullulo evolutis laxis. Inflorescentia ca. 6-flora pedunculo ca. 0.5 cm longo; flores 5-meri, pedicellis 9-10 mm longis. Hypanthium (ad torum) 6-6.5 mm longum teres; calyx ut videtur in alabastris clausus ca. 3.5 mm longus ad anthesim in lobis ovatis obtusis ca. 2.5 mm longis dehiscens, dentibus exterioribus paulo evolutis ca. 0.5 mm longis crassis non eminentibus. Petala glabra 21-22.5 X 16-19 mm obovata apice asymmetrico rotundato-truncato. Stamina paulo dimorphica glabra; filamenta 7.5-9 mm longa; antherarum thecae 8.2-9 X 1.2 X 1.5 mm vel 7 X 1 X 1.2 mm oblongo-subulatae, poro 0.2 mm diam. dorsaliter inclinato; connectivum 1.2-1.7 mm prolongatum, appendice dorsali 1.5 vel 1 mm longa hebeti ad apicem minute lobulata. Stigma non expansum; stylus 21.5 X 1.5-0.8 mm glaber; ovarium 5-loculare glabrum apice paullulo (0.3-0.4 mm) hebeti-lobulato.

Type Collection: G. Harling & L. Andersson 13506 (holotype GB; isotype US), collected in low mountain rain forest on Loja-Zamora road near the Zamora-Chinchi boundary, Prov. Loja, Ecuador, elev. 2600-2800 m, 13 April 1974. "Shrub 1.5 m. Corolla rose-red. Anthers blackish violet."

Meriania acida has leaf blades mostly 10-18 X 5-9 cm,

petals 11.5-14 X 11-16 mm, and the blunt dorsal tooth on the connective only 0.3-0.4 mm long. Meriania denticulata (Gleason) Wurdack also has larger leaves and smaller flowers, while both M. stellata (Gleason) Wurdack and M. loxensis Gleason have prominently emergent external calyx teeth as well as vegetative differences. Sympatric with M. furvanthera on the Loja-Zamora road near the cordillera crest are at least M. costata Wurdack, M. maguirei Wurdack, and M. rigida (Benth.) Triana, as well as perhaps other species collected in less well-defined areas east of Loja.

MERIANIA STELLATA (Gleason) Wurdack, comb. nov.

Calyptrella stellata Gleason, Phytologia 2: 428. 1948.

Graffenrieda stellata (Gleason) L. Wms., Fieldiana Bot. 29: 564. 1963.

This Ecuadorian species diverges in a somewhat different direction than M. denticulata (Gleason) Wurdack from M. acida (Markgraf) Wurdack, having much denser pubescence completely covering the lower leaf surfaces, more abundant hairs with protracted apices on the hypanthium, external calyx teeth projecting ca. 2.5 mm (rather than less than 1 mm), and longer large anthers (ca. 10 mm, rather than 6-6.5 mm). Meriania stellata has been compared with type material of M. acida, as well as two recent Cajamarca collections (Rauh P2202 and Hutchison 6393, both from near Hacienda Taulis) of the Peruvian species.

MERIANIA CUNEIFOLIA Gleason subsp. SUBANDINA Wurdack, subsp. nov.

Foliis maioribus (laminis 15-23 X 5-10 cm) subtus minus pubescentibus staminibus paullulo inaequalibus differt.

Type Collection: H. Lugo 143 (holotype GB; isotype US), collected at Mera, Prov. Pastaza, Ecuador, 27 Aug. 1968. "Tree 8-9 m high. Corolla tomato red, stamens black."

The typical subspecies, known from 2000-2500 m in Morona-Santiago and Loja, has thicker leaf blades 10-13 X 2.5-4.5 cm with lower surface hairs ca. 0.2 mm (rather than 0.5 mm or more) apart (the surface thus nearly completely obscured) and the anthers of the large stamens about twice as long as those of the small ones (rather than ca. 1/3 longer).

GRAFFENRIEDA HARLINGII Wurdack, sp. nov.

G. fantasticae Schultes & Smith affinis, foliis subtus in venarum primariarum axillis non barbatis inflorescentiarum capitulis prominenter bracteatis differt.

Ramuli teretes paulo robusti primum sicut folia novella inflorescentia bractee hypanthiaque obscure granulosi mox glabrati; linea interpetiolaris gracilis paulo evoluta. Petioli 1-1.5 cm longi; lamina (5-)6-10 X 3.5-6 cm elliptica vel ovato-elliptica apice rotundato-obtuso basi obtusa et paullulo (ca. 0.3 cm) decurrenti, rigida et integra, 5-nervata (pari exteriori tenui incluso) nervis secundariis ca. 4-5 mm inter se distantibus nervulis obsoletis. Panicula 12-13 cm longa multiflora; flores 4-meri subsessiles (pedicellis crassis 0.2-0.4 mm longis)

ad ramulorum apices glomerati (floribus ca. 6-10 in quoque glomerulo), bracteis orbiculari-ovatis ca. 4.5 X 4 mm sub-persistentibus. Hypanthium 3 mm longum teres; calyx in alabastris clausus ca. 1.6-1.8 mm longus ad anthesim in lobis ovatis 1.3-1.4 mm longis fissus. Petala glabra 4.8-5 X 3-3.4 mm elliptico-obovata apice late obtuso vel rotundato. Stamina isomorphica glabra; filamenta 3.3-3.5 mm longa; antherarum thecae 3.5-3.6 X 0.7 X 0.9 mm oblongo-subulatae poro 0.2 mm diam. paulo ventraliter inclinato; connectivum vix (0.2-0.3 mm) prolongatum, dente dorsali 0.7 mm longo acuto. Stigma punctiforme; stylus 8.2-9 X 0.4-0.1 mm glaber; ovarium 3-4-loculare apice paullulo (0.3 mm) emarginato glabro vel obscure resinoso-granuloso.

Type Collection: G. Harling & L. Andersson 13534 (holotype GB; isotype US), collected in low mountain rain forest on the Loja-Zamora road near the Zamora-Chinchipec border, Prov. Loja, Ecuador, elev. 2600-2800 m, 13 April 1974. "Shrub ca. 3 m high. Corolla white."

Graffenrieda fantastica has the inner leaf vein axils barbellate with fine hairs and the interrupted-verticillate flower clusters without prominent bracts. Other relatives perhaps include G. trichanthera Gleason (with relatively much narrower leaf blades, flowers interrupted-verticillate on the branches, thinner calyx lobes, smaller petals, and somewhat larger anthers with a setulose connective tooth), and G. emarginata (R. & P.) Triana (with larger 7-nerved cordate leaf blades and smaller flowers). Of seven dissected ovaries in G. harlingii, 4 were 4-celled and 3 were 3-celled.

AXINAEAE SODIROI Wurdack, sp. nov.

A. tomentosae Cogn. affinis, foliorum laminis ad basim rotundatis vel paulo cordatis subtus minus pubescentibus hypanthiis glabris antheris maioribus differt.

Ramuli primum obtuse quadrangulati demum teretes sicut petioli foliorum venae primariae subtus inflorescentiaque modice caduceque pilis pinoideis 0.2-0.5 mm longis setulosi; linea interpetiolaris obscure evoluta ca. 0.1-0.2 mm elevata. Petioli 2-3(-11) cm longi; scutum crassum 1.5-3 mm elevatum evolutum; lamina 11-18(-28) X (6-)9-14(-25) cm elliptico-ovata apice rotundato vel hebeti-obtuso basi 0.5-1(-2.5) cm cordata, coriacea et distanter undulato-serrulata, supra glabra, subtus in superficie sparsiuscule setulosa pilis pinoideis ca. 0.3 mm longis, 5(-7)-nervata nervis secundariis ca. 5 mm inter se distantibus nervulis supra obscure elevatis subtus paulo elevato-reticulatis areolis 0.7-1 mm latis. Panícula 15-24 cm longa multiflora ut videtur nutans; flores 5-meri, pedicellis 7-10 mm longis. Hypanthium (ad torum) 5 mm longum basim versus paulo pinoideo-puberulum alioqui glabrum; calyx 1.5 mm longum truncatum, dentibus exterioribus obscuris. Petala glabra 15-17 X 9-10 mm obovato-oblonga apice asymmetricè rotundato. Stamina paulo dimorphica glabra; filamenta 10.5 vel 7-7.3 mm longa; antherarum thecae 13 vel 10 X 1 mm subulatae, poro 0.2 mm diam. dorsaliter

inclinato; connectivum non prolongatum, appendice inflata 3.8-4 X 2.5 X 3.2 mm vel 3.5 X 2.5 X 2.8 mm. Stigma non expansum; stylus 15 X 1.2-0.7 mm glaber in ovarii collo ca. 1 mm immersus; ovarium 5-loculare, apice hebeti-lobulato.

Type Collection: A. Sodiro s. n. (holotype BR, 2 sheets; isotype P), collected "in silv. occ. suband. m. Pich.", Prov. Pichincha, Ecuador, August 1905. "Arbor 6-8 metr. Coma patula floribunda spectabilis."

Paratype: Sodiro Add. 1 (BR), from "silv. subtrop. v. Guala, " Pichincha, Ecuador. "Arbusc.-flor. ignoti."

Axinaea tomentosa has leaf blades broadly acute to obtuse and beneath persistently dense-setulose, hypanthia densely setulose, and anther thecae only 8 or 6 mm long. Cogniaux had suggested on the type collection of A. sodiroi that A. crassinoda Triana might be the closest relative; however, that species has well-developed branchlet node flaps as well as 4-merous flowers. Axinaea weberbaueri Cogn. and A. tovarii Wurdack, both with relatively narrower leaves and small anther thecae, are more distant relatives of A. sodiroi. The Guala specimen, while sterile and with large markedly cordate leaves, has the same pubescence as the type collection.

TRIOLENA PILEOIDES (Triana) Wurdack, comb. nov.

Diolena pileoides Triana, Trans. Linn. Soc. Bot. 28: 81. 1871.

The species has been twice collected in Prov. Napo, Ecuador (Jameson 772, Holm-Nielsen & Jeppesen 775).

TRIOLENA PILEOIDES (Triana) Wurdack subsp. PANAMENSIS Wurdack, subsp. nov.

Inflorescentia evoluta fructifera usque ad 4 cm longa, floribus 3-5(-8).

Type Collection: R. L. Dressler 5035 (holotype US 2776819), collected along the first branch of the Río Santa María about 8 km west of Santa Fé, Prov. Veraguas, Panamá, elev. ca. 650 m, 18 May 1975. "On mossy wet rocks and tree trunks near stream; buds white and pink; leaves pink when in sun."

Paratype: S. Mori & J. Kallunki 5340 (MO, US), from northwest of Santa Fé 2.7 km from Escuela Agrícola Alto de Piedra on road to Calovebora, Veraguas, Panamá, 30 Mar. 1975. "Abundant on rocks along stream. Petals white, tinged with pink."

The typical subspecies, well represented from Colombia (Valle, Nariño) and Ecuador (vide supra) consistently shows solitary flowers, although Triana's description cited them as "subsolitary." Both subspecies have two types of gland-tipped hairs, the more abundant trichomes with glands only ca. 0.03 mm long, the other with glandular heads ca. 0.1 mm long; in the Panamanian population, the larger hairs are developed on the pedicels as well as the toral region while the South American subspecies does not have the larger glands on the pedicel pubescence.

TRIOLENA ASPLUNDII Wurdack, sp. nov.

T. dressleri Wurdack et T. pustulatae Triana in foliis supra pustulato-setulosis similis, foliis in quoque pari valde dimorphicis differt.

Caulis sublignosus 12-30 cm longus ad basim radicans sicut laminarum venae primariae subtus petiolique dense pilis subappressis gracilibus 1-2(-2.5) mm longis inconspicue caduceque glanduliferis armatus. Folia in quoque pari valde inaequalia (3.5-7:1) membranacea irregulariter serrulata (dentibus 0.5-1.5 mm profundis), anguste ovata, supra modice pustulato-setulosa (setulis gracilibus ca. 1 mm longis p. p. glanduliferis glandulis mox deciduis), subtus paulo foveolata et in venis secundariis tertiariisque sparsiuscule appresso-setulosa. Folia maiora: petioli 0.7-1.6 cm longi; lamina 6-10.5 X 2.5-4.5 cm apice gradatim hebeti-acuminato basi obtusa et valde (0.5-1.5 cm) asymmetrica, breviter 5-7-plinervata. Folia minora: petioli 0.1-0.2 cm longi; lamina 1-2.4 X 0.5-1.3 cm apice hebeti-acuto basi rotundata vel subcordata 3(-5)-nervata. Flores ignoti. Inflorescentia 3-5 cm longa plerumque 3-5-fructifera, axe sicut pedicellis hypanthiisque sparsiuscule graciliterque setuloso, pedicellis ca. 2-3 mm longis; fructus unilateraliter dispositi ca. 4 X 5-6 mm triquetri; capsula 3-locularis, seminibus 0.5 X 0.3 mm obscure tuberculatis.

Type Collection: E. Asplund 19308 (holotype S), collected in forest about 2 km east of Puyo, Prov. Pastaza, Ecuador, elev. ca. 900 m, 9 Feb. 1956.

Paratypes (both Pastaza, Ecuador): Asplund 20104 (S), from Shell Mera, elev. ca. 900 m, 3 April 1956 ("Leaves red beneath"); G. W. Prescott 402 (NY), from Puyo, 16 Feb. 1953.

None of the other known species of Triolena with strongly dimorphic foliage has the leaves pustulate above. Until flowers are known, speculation on the exact species relationship is futile, at least for me.

MICONIA HETEROMERA Naud.

Clidemia simulans Macbride, Field Mus. Publ. Bot. 13(4): 494. 1941.

Stork & Horton 9516 (K) conforms in all ways, including predominantly 6-merous flowers, to recent near-topotypical (Tocache Nuevo, J. Schunke 3659 and 7430) and Huánuco (Croat 21188, Schunke 5159) collections of M. heteromera.

MICONIA SCLEROPHYLLA Triana

The holotype (K) quite conforms with many recent collections from the Brazilian Planalto (Minas Gerais: Anderson et al 8477, 8661, 35365; Heringer 7304; Irwin et al 20156, 21844, 22490, 28182, 28974; Maguire et al 44610, 44766; Mexia 5769. Distrito Federal: Irwin et al 26633. Mato Grosso: Hatschbach et al 36515). The country of origin of the type collection sent to Kew was suspected by Bentham to be Peru, the collector Pavón; however, it seems certain (possibly confirmable by searching at Oxford) that the collector was Luschnath, Claussen, Pohl, Riedel,

or another of the Brazilian collectors represented in the Fielding Herbarium. The flowers are 4-merous, although Cogniaux (who did not see, or at least did not annotate, the Kew specimen) keyed M. sclerophylla with the 5-merous species of Sect. Glossocentrum. A very close relative is M. corallina Spring, which has quite flexuous (rather than rigid) arms on the pinoid-stellate hairs of the lower leaf surfaces (thus a cobwebby aspect under low magnification), calyx lobes strigillose within (rather than glabrous), torus within setulose with barbellate hairs (rather than glabrous), and inflorescence branches with longer pubescence (the hypanthia thus appearing partly immersed).

MICONIA WARMINGIANA Cogn.

The species was described as with 5-merous flowers, but this feature is contradicted in the Flora Brasiliensis plate. The Paris isotype of M. warmingiana, as well as Glaziov 21393 and Irwin, Harley, & Onishi 30284 (base of Serra de Piedade on road to Caete, Minas Gerais), all show 4-merous flowers. Perhaps the closest relative is M. corallina (vide supra), both species having similar calyx and torus pubescence within. Miconia corallina differs from M. warmingiana in the much thicker and relatively broader entire leaf blades which have cordate bases and rufous (rather than cinereous) pubescence beneath, as well as the thicker inflorescence branchlets.

CLIDEMIA BARBATA Triana

Clidemia rigida Cogn. & Gleason ex Gleason, Am. Journ. Bot. 19: 750. 1932.

The holotypes (Triana 4108, Quindio, BM; Lehmann 6132, above Cali, US) have been compared and certainly represent the same Colombian taxon. A recent collection is Huertas & Camargo 5331 (COL, US), from along the road to Buenaventura 15 km from Cali, Valle, elev. 1500 m. A few of the cauline, petiolar, and hypanthial hairs are gland-tipped.

CLIDEMIA VERRUCULOSA Wurdack, sp. nov.

Sect. Sagraea. In systemate Cogniauxii C. francavillanae Cogn. et C. attenuatae (Naud.) Cogn. affinis, foliis basaliter nervatis corollis subapicaliter dente setuloso armatis differt.

Ramuli teretes sicut foliorum venae primariae subtus petiolique dense incurvo-setosi (pilis 2-3 mm longis laevibus gracilibus) pilis pinoideis ca. 0.1-0.2 mm longis sparse et glandulis minutis 0.05 mm longis modice intermixtis. Petioli 1-2 cm longi; lamina (6-)11-21 X (2.5-)4-8.5 cm, elliptica apice breviter gradatimque hebeti-acuminato basi acuta, firme membranacea et crenulato-denticulata, supra dense bullato-setulosa, subtus foveolata et in venis secundariis tertiariisque modice longo-setulosa in venulis superficieque glabra, 5-nervata (pari inframarginali debili neglecto) nervulis subtus planis obscuris areolis 0.2-0.3 mm latis. Flores 4-meri in foliorum superiorum axillis multiglomerati subsessiles (pedicellis obscuris 0.1-

0.2 mm longis), bracteolis ca. 1 X 1 mm oblongis persistentibus ob pilos occultis. Hypanthium (ad torum) 2.2-2.7 mm longum modice appresso-setosum pilis ca. 1(-2) mm longis laevibus eglandulosis; calycis tubus 0.1-0.2 mm longus, lobis interioribus 0.3-0.4 mm longis ovatis, dentibus exterioribus setulosis 0.1-0.3 mm eminentibus; torus intus glaber. Petala 3 X 0.9-1.1 mm oblonga extus subapicaliter dente 1-3-setuloso armata alioqui glabra. Stamina glabra; filamenta 3.5-4.5 mm longa; antherarum thecae 2.3-2.6 X 0.25 mm anguste oblongae, poro terminali 0.15-0.2 mm diam.; connectivum ad basim non vel paullulo (0.1-0.2 mm) prolongatum non appendiculatum. Stigma vix expansum 0.3 mm diam.; stylus 8 X 0.25 mm glaber in ovarii collo 0.3 mm immersus; ovarium 3(-4)-loculare omnino inferum collo sparse setuloso.

Type Collection: José Schunke Vigo 6786 (holotype US 2751859; isotype MO), collected in high forest on right bank of Río Mishollo along road to Santa Rosa, Dto. Tocache Nuevo, Prov. Mariscal Cáceres, Depto. San Martín, Peru, elev. 350-370 m, 9 Aug. 1973. "Arbusto 2-3 m. Lo tallo jóvenes tienen pelos de color pardo. Hojas rugosas de color verde intenso. Flores pale orange yellow; estambres blancos."

Both C. francavillana and C. attenuata have 5-7-plinerved leaf blades with relatively longer petioles and essentially plane upper surfaces, as well as glabrous petals. Clidemia heteronervis (Naud.) Wurdack and its allies do not seem as closely related to C. verruculosa as perhaps C. debilis Crueg. and C. rubra (Aubl.) Mart., having shorter pubescence and markedly plinerved leaf blades. Descriptions of the critical features of all these species except C. francavillana have been earlier published by me.

CLIDEMIA DISCOLOR (Triana) Cogn., DC. Mon. Phan. 7: 1025. 1891.
Sagraea discolor Triana, Trans. Linn. Soc. Bot. 28: 139. 1871.

Clidemia purpureoviolacea Cogn., Bull. Acad. Soc. Belg. 30(1): 263. 1891.

The Triana holotype (BM) agrees in salient features with recent collections from Central America (Costa Rica, Panama), Colombia (Santander, Antioquia, Chocó, Valle, Nariño), and Ecuador (Esmeraldas, Pichincha); the original description of leaf blades attenuate at the base is misleading, the type showing young leaves basally obtuse but mature ones rounded. Synonymy of C. crotonifolia Pilger and C. cordata Cogn. is probable; types have not been studied and certainly recent Peruvian collections in San Martín and Amazonas are referable to C. discolor, but material from southeastern Peru and Bolivia differs in the sparsely ciliolate external calyx teeth (with other floral features not now discernible). Throughout most of the range of the complex, occasional collections show capitate-agglomerate inflorescences with variable "peduncle" length; I believe these inflorescences are diseased or resulting from arthropod injury and that (ex char. and photo) C. urticoides

Pilger will prove synonymous with C. discolor.

CLIDEMIA OSTRINA Gleason, Phytologia 1: 46. 1933.

Clidemia ramiflora Gleason, Brittonia 2: 323. 1937.

The affinity mentioned by Gleason is certainly true; however, all the collections show similar petals (sporadically with 1-2 setulae ca. 0.1 mm long) and 4-celled anthers with essentially glabrous connectives. Clidemia ostrina is closely related to C. discolor (without reliable vegetative distinctions), but differs in the not or barely emergent calyx teeth (rather than 0.7-2 mm protruding) and 2-celled (rather than 4-celled) ovaries. The species is known from Costa Rica (a recent collection being Davidse & Pohl 1193, from Maravia de Churipó, Cartago, 1125 m), Venezuela, Colombia (Boyaca, Antioquia), and Ecuador (Morona-Santiago). I am uncertain as to the correct disposition of C. ramiflora var. colombiana Gleason (described without sepals, petals, and stamens known), but phytogeographically believe it to be referable to C. discolor; certainly Haught 4945, placed by Gleason in C. ramiflora var. colombiana is better accommodated in C. discolor. In both C. ostrina and C. discolor, the size of the inflorescences is too variable for taxonomic utility.

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NOTES ON NEW AND NOTEWORTHY PLANTS. XCIV

Harold N. Moldenke

AVICENNIA SCHAUERIANA f. CANDICANS Moldenke, f. nov.

Haec forma a forma typica speciei recedit laminis foliorum subtus plusminusve densissime canescenti-puberulis.

This form differs from the typical form of the species in having the lower surface of its leaf-blades more or less very densely canescent-puberulent or farinaceous.

The type of the form was collected by Alma L. Moldenke and Harold N. Moldenke (no. 19606) in the mangrove formation at Manguinhos, Rio de Janeiro, Guanabara, Brazil, on September 16, 1948, and is deposited in the Britton Herbarium at the New York Botanical Garden.